

REMARKS

The foregoing amendment is submitted to require that the stain removing components (i.e. peroxide, polyphosphate and anionic surfactant) are not materially bound to the gum base in the chewing gum composition. Support for the amendment to claim 1 is shown in the paragraph beginning at page 19, line 4. The stain removing components of the present invention must be added to the chewing gum composition in a manner which enables the release of the combination of the stain removing components in an effective amount to perform its stain removing function. As indicated at page 21, beginning at line 11, Applicants determined that to perform a stain removing function, the stain removing components must not be materially bound to the chewing gum composition and particularly to the gum base. The gum base is well known as a hydrophobic material. If the gum base is combined directly with the stain removing components, a material amount of the stain removing components will be bound to or retained within the gum based and therefore unavailable for release into the oral cavity where it can perform a stain removing function. A material binding of the stain removing component to the gum base must therefore be avoided. One way of avoiding a material binding is not to mix the stain removing components directly with the gum base (page 21, lines 11-14).

Accordingly, Applicants submit that claim 1 as amended (which requires the stain removing components not be materially bound to the gum base) is fully

supported in the application as filed. This amendment has necessitated the cancellation of claim 41. Entry of the amendment is therefore deemed proper and is respectfully requested.

The Office Action sets forth several new rejections based on anticipation or obviousness. As we will show below, the present claims are neither anticipated by nor rendered obvious by the references. In addition, Applicants will show that the combination of stain removing components results in unexpected stain removing properties over what would be expected from the use of the individual stain removing components alone.

Claims 1-14, 25, 33, 35 and 39-43 stand rejected as anticipated by Day (WO 01/39606). The Office Action correctly states that the reference discloses polyphosphates and softeners such as sodium and potassium stearate as well as whitening agents such as peroxides in a chewing gum composition. The rejection is hereby traversed and reconsideration is respectfully requested.

It is an important discovery of the present invention that certain materials (referred to herein as stain removing components) have stain removing properties if they can be released in material amounts into the oral cavity. The chewing gum composition of the present claims contains a significant amount of hydrophobic gum base. The hydrophobic nature of the gum base tends to entrap or materially bind the stain removing components therein making it difficult for a material amount of these

components to be released into the oral cavity. In accordance with the present invention, these stain removing components are incorporated into a chewing gum composition in a manner where they are not materially bound to the gum base and therefore available to perform an effective stain removing function.

Day is principally concerned with the use of polymeric surface active agents for conditioning the teeth. An example of the polymeric surface active agents is a polyphosphate (page 4, line 23). As indicated at page 6, lines 19-20, the particular polyphosphate materials for use in the invention are distributed evenly throughout the gum base. Accordingly, the reference teaches that the polyphosphate material is purposely incorporated into the gum base in order to achieve uniform distribution therein. One following the teaching of Day with respect to the polyphosphate, would be led in a direction directly opposite to that of the present invention which requires keeping the polyphosphate away from the gum base so that it is not materially bound thereto.

Applicants agree that Day discloses the use of softeners such as sodium and potassium stearate. As indicated beginning on page 8, line 22, softeners are used to modify the texture of the gum base. In particular, softeners are used to make the gum base more chewy and therefore more desirable to consumers. This is a well known property of softeners. In order to accomplish this purpose, the softeners must be incorporated directly into the gum base in amounts sufficient to modify the texture and consistency properties. As a result, the softeners soften the chew of the gum

base (page 8, lines 32-34). Accordingly, Day uses softeners for their well known purpose of modifying the texture of gum base and therefore directly incorporate the softeners into the gum base so that it can perform this function. This methodology is directly contrary to the present invention wherein the chewing gum composition incorporates a combination of stain removing components into the chewing gum composition while avoiding material binding to the gum base.

Applicants acknowledge that whitening agents such as a peroxide may be added to the chewing gum composition as disclosed on page 11, lines 26-31. It is noted that whitening agents are listed among a wide variety of other additives including surfactants. Thus, it follows that there is no teaching or suggestion in this portion of the reference that peroxides are not added directly to the gum base as discussed above in connection with surfactants such as sodium and potassium stearate. To the contrary, listing peroxides with surfactants is a strong indication that peroxides, like surfactants, are added directly to the gum base.

It therefore follows that Day does not recognize or suggest the importance of keeping stain removing components away from the gum base to the extent that material binding is avoided. Accordingly, Day does not teach or suggest the claimed invention and the present claims are deemed patentable thereover for this reason alone.

In addition, the present application supports a surprising and unobvious result obtained when the combination of stain removing components are utilized as compared to the individual components alone. Reference is made to Figure 1 and the description in Example 2, beginning on page 33. Hydroxyapatite discs were prepared and treated to form a biofilm that were discolored with vegetable stain. Hydroxyapatite discs are customarily used for this purpose. The discs were suspended in either water or a test solution which contained certain concentrations of sodium stearate, sodium tripolyphosphate, or carbamide peroxide. Two other test solutions were prepared with the same amount of carbamide peroxide and sodium stearate and carbamide peroxide and sodium tripolyphosphate, respectively. The sodium stearate test solution showed an approximate 65% reduction in stain. The solution of sodium tripolyphosphate showed an approximate 95% reduction in stain. The solution of carbamide peroxide showed an approximate 28% reduction in stain.

Two of the three test solutions were combined in the same concentration. A surprising and unobvious increase in stain reduction resulted. More specifically, the test solution containing carbamide peroxide and sodium stearate would have been expected on a cumulative basis, to exhibit an approximate 93% reduction in stain. Instead, the amount of stain reduction was unexpectedly, 150%.

The degree of stain reduction for the test solution containing carbamide peroxide and sodium tripolyphosphate would be expected on a cumulative basis to be approximately 123%. Quite unexpectedly, the test solution exhibited a 180%

reduction in stain. These results, as indicated on page 34 of the specification, establish a surprising and unobvious result which was not anticipated or suggested by the Day reference. For this reason as well, the present claims are deemed patentable over Day.

Claims 1, 9, 20-22, 24, 33, 39 and 42-43 stand rejected as anticipated by Howard. The rejection is hereby traversed and reconsideration is respectfully requested.

At the outset, it is noted that claim 41 is not rejected as anticipated by the reference. As previously indicated, the subject matter of claim 41 has been incorporated into claim 1 and therefore the rejection based on anticipation must be withdrawn for this reason alone.

Howard discloses a chewing gum containing a teeth whitening agent. The teeth whitening agent is a peroxyhydrate. The Office Action is correct in stating that plasticizers such as sodium stearate and potassium stearate are added to the reference chewing gum composition. However, as noted beginning at column 4, line 8, plasticizers or softening agents are incorporated within the gum base. As explained above, the incorporation of surfactants within the gum base makes them unavailable for a stain removing function. As indicated in Example I, a softening agent such as vegetable glycerin is added directly to the gum base as indicated at column 6, lines 18-19.

It is therefore submitted that Howard does not disclose a chewing gum composition in which multiple stain removing components are available because they are not materially bound to the gum base. Quite clearly, sodium stearate and potassium stearate as examples of common plasticizers (softeners) are purposely incorporated into the gum base to optimize the chewability and mouthfeel of the gum (column 2, lines 13-14). It is therefore submitted that for this reason as well, Howard does not anticipate or render obvious the claimed invention.

Furthermore, there is no teaching or suggestion in Howard of the surprising and unobvious stain removing properties obtained by the combination of the stain removing components of the present invention as discussed above in connection with the Day reference.

Claims 1, 2, 9, 13, 14, 20-22, 24, 33 and 41-43 stand rejected as anticipated by Miskewitz (U.S. Patent No. 5,693,334). The rejection is hereby traversed and reconsideration is respectfully requested.

Applicants acknowledge that the reference discloses a peroxygen compound including urea peroxide for the purpose of providing anti-bacterial and plaque-inhibiting activity. As indicated in the Office Action, the reference composition also contains an anionic surfactant which is described beginning at column 3, line 61 as the type of additive that is found in the chewing gum base (i.e. directly incorporated

into the chewing gum base). This is further substantiated at column 5, lines 59-63 which shows that the softener is added to enhance the chewability and mouthfeel of the chewing gum (i.e. added directly to the gum base). Accordingly, Miskewitz is similar to Day and Howard in that there is no disclosure of the combination of stain removing components as required in the present invention nor the manner in which they are incorporated into the chewing gum composition which makes them available for release into the oral cavity to perform a stain removing function. Quite to the contrary, the anionic surfactant in Miskewitz is used as a softener and therefore is incorporated directly into the gum base to soften the gum and improve its texture. For this reason alone, the present invention is deemed patentable over Miskewitz. In addition, there is no teaching or suggestion of the surprising and unobvious nature of the combination of the stain removing components and the manner in which they are employed in the chewing gum composition of the present invention (i.e. not materially bound to the gum base). The combination of stain removing components produces a stain removing reduction which is not expected from the individual components alone as described previously.

Claims 20-24, 29 and 30 stand rejected as obvious over the combination of Day in view of Sagel (U.S. Patent No. 6,582,708). The rejection is hereby traversed and reconsideration is respectfully requested.

In view of the incorporation of the limitation of claim 41 into claim 1, it is respectfully submitted that the claims rejected under the combination of the above-

mentioned references are patentable. The Office Action acknowledges that Sagel does not teach or suggest the use of a polyphosphate or anionic surfactant in the manner claimed in the present application to achieve a stain removing effect. Accordingly, the combination of Day and Sagel does not render any aspect of the claimed invention obvious to one of ordinary skill in the art.

Claims 44-46 stand rejected as obvious over the combination of Day in view of Cherukuri (U.S. Patent No. 4,980,178). Cherukuri is stated to disclose center-filled gums to deliver pharmaceutical components but the Office Action acknowledges that there is no teaching or suggestion of the use of peroxides, polyphosphates or anionic surfactants. It is important to note that Cherukuri, like the other references, teaches the use of plasticizers or softeners to desirably modifier the texture and consistency of the gum base and clearly teaches that these materials (e.g. sodium stearate and potassium stearate) are added directly to the gum base (see column 6, lines 44-51).

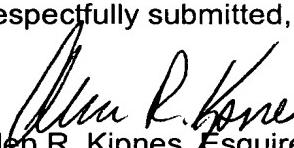
There is nothing in the reference which teaches or suggests the importance of employing the combination of stain removing components claimed in the present invention and keeping those components in the composition in a manner which does not materially bind them to the gum base. Thus, the citation of Cherukuri does not cure the deficiencies of Day and the rejection of claims 44-46 is deemed improper and should be withdrawn.

Applicants have shown that the present chewing gum composition requires the use of the composition of stain removing components which are positioned within the chewing gum composition so that they do not materially bind to the gum base. Furthermore, the combination of stain removing components present in the chewing gum composition in this manner, produces a surprising and unobvious degree of stain reduction that could not be anticipated by the stain removing components alone.

In view of the foregoing, Applicants submit that the present application is in condition for allowance and early passage to issue is therefore deemed proper and is respectfully requested.

It is believed that no fee is due in connection with this matter. However, if any fee is due, it should be charged to Deposit Account No. 23-0510.

Respectfully submitted,



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